

REMARKS

By the present Amendment, claims 8 and 12 are amended, and claims 14-17 are added. This leaves claims 9-17 pending in the application, with claims 8, 12 and 14 being independent.

Objection Under 35 U.S.C. §132(a) and Rejection Under 35 U.S.C. §112, First Paragraph

The objection to the October 18, 2007 Amendment under 35 U.S.C. §132(a) as containing “new matter” and the rejection of claims 8-13 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement and as being based on a disclosure that is non-enabling relative to the recitation in claim 8 of a “concave cambered surface” in the cylindrical tube appear to have been withdrawn in the March 24, 2008 Advisory Action in view of the February 26, 2008 Amendment.

Rejection Under 35 U.S.C. § 102

Amendment claim 8 covers a piston accumulator comprising an accumulator housing in the form of a cylindrical tube 1 with first and second working chambers 5 and 6 and with a piston stroke area 19. The cylindrical tube has a wall adjoining the piston area and being a unitary one-piece component of the cylindrical tube. A piston 15 separates the working chambers from one another, and is movable in an axial direction within the piston stroke area. First and second closing components close the axial ends of the cylindrical. The first closing component 7 is formed by shaping a reshaping area 9 of the wall of cylindrical tube 1. A rigid stop element 25 of rigid, non-elastic material is in an interior of the cylindrical tube at a transition from the piston stroke 19 area to reshaping area 9. The stop element restricts movement of the piston before reaching the reshaping area. The stop element is a level plate having a rigid, crowned, convex cambered circumferential surface 27. A shoulder 23 is inside

the cylindrical tube for supporting and retaining the stop element. A concave cambered surface is in the cylindrical tube adjacent to the shoulder, and receives, is formed about and directly engages the circumferential surface of the stop element during deformation of the wall in forming first closing component 7 to retain positively the stop element in place in the cylindrical tube against its axial movement.

As disclosed on page 7, lines 8-13, the stop element or plate 25 is “designed as a relatively rigid structural element of a steel material...[and] forms a rigid support element for the cylindrical tube 1 in the area of transition...during the shaping process.” Such disclosure, along with the drawings, fully supports the amendments to the claims.

By forming the piston accumulator in this manner, the rigid stop element is positively and directly secured against axial movement, and allows the accumulator housing to be formed in a simple and efficient production process without adversely affecting its operational behavior.

Claims 8-13 stand rejected under 35 U.S.C. §102 as being anticipated by WO 02/12731 to Yuda. The Yuda document is cited for disclosing a piston accumulator having a housing formed by cylindrical tube 3, and a movable piston formed by elements 7 and 16 separating a gas chamber 8 and a hydraulic chamber 9. The housing allegedly has a closing element 4 and a reshaping area 3a. A rigid stop element 17 is allegedly provided against shoulder 3c. The rigid element is allegedly a flat plate portion 17d where the stop element is at a transition between the piston stroke area and separates such from the reshaped area 3a. The rigid plate is alleged to be curved and therefore forms a convex surface. The area of the wall receiving the plate edge is allegedly concave. The plate allegedly stops motion of the alleged piston from entering the reshaping area. A discharge opening 21 is allegedly present in the plate member. The shoulder allegedly inherently forms a level surface for butting the plate member adjacent the

circumferential surface. Even though the Yuda document has a bellows, the structure 7 and 16 is alleged to form a piston to meet the claim language.

Claim 8 is patentably distinguishable over WO 02/12731 to Yuda for failing disclose a piston accumulator. The accumulator of this Yuda International patent is a diaphragm accumulator. The Yuda members 7 and 16 do not comprise or form a “piston”, as that term is commonly used in the field of fluid accumulators.

Additionally, the Yuda chamber forming member 17, apparently equated to the claimed stop element, is not in the form of a level plate having a rigid crowned, convex cambered circumferential surface used in forming and directly engaging the concave cambered surface in the cylindrical tube, as recited in claim 8. Even if the outer circumferential edge of chamber forming member 17 is viewed as being a crowned, convex cambered circumferential surface, that member surface and the recess in the housing wall surface between Yuda housing parts 3b and 3c are separated by elastic material 24 on the left side in Figs. 1 and 2 and by an empty space on the right side in Fig. 1. The elastic material 24 and that empty space demonstrate that the housing surface is not formed about the stop element circumferential surface for positive retention, as claimed, since the Yuda housing and stop element surfaces would not mate and directly engage as in the claimed structure to provide a rigid, non-elastic connection allowing use in high temperature on high pressure application. In contrast to the claimed structure, the Yuda housing surface adjacent the circumferential edge of member 17 appears to be cut and requires the elastic material for insertion, with the elastic material precluding use in high temperature and high pressure applications.

Forming the Yuda groove by cutting is expensive. The concave surface formed about the stop element of the present invention is inexpensive and can be accomplished quickly.

Thus, this Yuda patent does not anticipate or render obvious the subject matter of claim

8.

Claims 9-11, being dependent upon claim 8, are also allowable for the above reasons.

Moreover, these dependent claims recited additional features further distinguishing them over the cited patents. Specifically, the discharge opening of claim 9, the level surfaces of claim 10, and the gas supply space and hydraulic fluid space of claim 11 are not anticipated or rendered obvious of the cited patents, particularly within the overall claimed combinations.

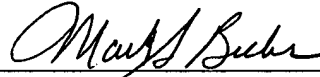
Claim 12 is similar to claim 8, except that the rigid stop element is now recited as being an annular element rather than a level plate. Thus, claim 12 is patentably distinguishable over the cited patents for the same reasons advanced above, which reasons are not repeated to avoid burdening the record.

Claim 13, being dependent upon claim 12, is also allowable for the above reasons. Moreover, claim 13 is distinguishable over the cited patents for the additional reasons advanced above relative to claim 11.

Claim 14 recites a method of making a piston accumulator, and is patentably distinguishable for the same reasons advanced above. In this manner, this method claim and the claims dependent thereon satisfy the unity of invention criteria applicable to this U.S. national phase of an International application. Thus, these method claims are to be considered on their merits and are allowable

In view of the foregoing, claims 8-17 are allowable. Prompt and favorable action is solicited.

Respectfully submitted,



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